

REMARKS/ARGUMENTS

The Examiner is thanked for the performance of a thorough search. No claims have been added, cancelled, or amended. Hence, Claims 1-43 are pending in the application.

THE REJECTIONS BASED ON THE PRIOR ART

Claims 1-43 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Schofield et al., U.S. Patent No. 6,493,826 B1 (herein referred to as Schofield).

CLAIMS 1 AND 23

Claims 1 and 23 recite,

performing a first operation of said first plurality of operations associated with the atomic transaction;
during said step of performing the first operation, detecting a first error that prevents completion of the first plurality of operations;
in response to detecting the first error, performing a second plurality of operations for resolving the first error;
determining whether a resolution of the first error is obtained in response to performing the second plurality of operations; and
if the resolution is obtained, then *resuming execution of the first plurality of operations*...(emphasis added).

The Office Action cites Schofield column 6, line 58 - column 7, line 30 in support of the rejection of Claims 1 and 23. Claim 1 recites the limitation of (1) “in response to detecting the first error, performing a second plurality of operations for resolving the first error”, (2) “determining whether a resolution of the first error is obtained in response to performing the second plurality of operations” and (3) “if the resolution is obtained, then resuming execution of the first plurality of operations.” This limitation teaches that after detecting a first error an attempt is made to resolve the error, and if the error can be resolved, the execution of the first

plurality of operations (e.g., a transaction that did not commit) is resumed. However, in Schofield, non-committed transactions are backed out or rolled back. There is no teaching or suggestion in Schofield of resuming the first set of operations. It should be noted that a transaction can always be restarted from scratch after a rollback operation. However, restarting a transaction is functionally different than resuming the execution of a transaction. The advantages of resuming the transaction as opposed to restarting is that the system functions more efficiently as well as saving a significant amount of time. If the failed transactions are undone, and subsequently restarted, hours of time are consumed to perform the undo operations and then repeat the transaction operations already performed. This is both inefficient and very time consuming.

Similarly, Schofield states that “the present invention provides a transaction processing system in which records associated with operations of the system are stored in order to permit recovery in the event of a need to **roll back a transaction or to restart the system.**” (Column 6 lines 45-49). There is no teaching or suggestion in Schofield of resuming the execution of a transaction that had an error.

Additionally, Schofield does not attempt to resolve the error. Schofield’s response to a transaction failure before successful completion of the transaction is to “read the volatile-memory list for the transaction to determine which operations are to be backed out, and backing out the operations using the information of the volatile-memory list” (Column 7 lines 9-13). When operations are backed out or rolled back, the transactions are undone and subsequently restarted. Thus, the error which occurred is never resolved. In contrast, Claims 1 and 23 recite, “in response to detecting the first error, performing a second plurality of operations for resolving the first error.”

CLAIMS 14 AND 36

Claims 14 and 36 recite,

in response to said call, performing the steps of
 adding to a data structure data indicating a first pending request for a first resource;
 requesting the first resource;
 determining whether a first error occurred during said requesting the first resource;
 if the first error occurs, then
 determining whether data indicating a second pending request for a second resource precedes the data indicating the first pending request in the data structure, and
 if the data indicating the second pending request precedes the data indicating the first pending request, ***then responding to said call with data indicating the first error.***

The Office Action relies upon contents of column 9, lines 1-32, to reject Claims 14 and 36. In contrast to Claims 14 and 36, there is no discussion in column 9, lines 1-32, of “adding to a data structure data indicating a first pending request.” Schofield does not use or discuss adding, to data structures, data that indicates pending requests. Schofield instead discloses the use of locks to prevent access to resources which are being updated. Locks are functionally different than the data structures of Claims 14 and 36. A lock is a mechanism used to prevent access to a resource when the resource is being accessed or modified. The data structure of Claims 14 and 36, on the other hand, is a container used to store data in some structured form.

Column 9, lines 1-34, also do not teach “determining whether data indicating a second pending request for a second resource precedes the data indicating the first pending request in the data structure”. As stated previously, Schofield does not use data structures to hold data that indicates a pending request. Schofield also does not suggest determining whether data indicating one pending request precedes data indicating another pending request in a data structure.

Furthermore, Claims 14 and 36 recite “if the data indicating the second pending request precedes the data indicating the first pending request, then responding to said call with data indicating the first error”. In contrast, Schofield, in column 9 lines 1-32, discloses the use of semaphore locks which only “prevent processes which could otherwise concurrently access the resource from interfering with each other.” The use of semaphore locks is fundamentally different than determining if data that indicates a second request precedes data that indicates a first request in a data structure and, if so, indicating an error. A lock prevents access to a resource, but does not perform any determination of errors or provide any indication if an error occurred.

CLAIM 22

Claim 22 states

determining whether the first error is a member of a predetermined set of errors for which corrective action is available for allowing the atomic transaction to be completed; and
 upon determining that the first error is a member of the predetermined set of errors, performing a second plurality of operations for resolving the first error,...
 determining whether a resolution of the first error is obtained within a particular time period in response to performing the second plurality of operations;
 if the resolution is obtained, then ***resuming execution of the first plurality of operations***;...(emphasis added)

The Office Action cites column 6, line 58 - column 7, line 30, which were discussed above in regard Claims 1 and 23, to allegedly disclose these features. Similar to Claims 1 and 23, Claim 22 indicates that if the resolution of the error is obtained, then the first plurality of operations is resumed. In contrast, the passages cited by the Office Action recite backing out or rolling back the transaction if there is an error, and never discuss resuming execution of the transaction.

The Office Action also relies upon column 9, lines 1-32 to reject Claim 22. Column 9, lines 1-32 are discussed above regarding Claims 14 and 36. As discussed above, semaphore locks are used to “acquire a resource, by one process at a time, to prevent processes from interfering with each other.” This is not the same as “determining whether a resolution of the first error is obtained” as recited in Claim 22. Furthermore, column 9, lines 1-32, does not disclose that if the resolution is obtained, then resuming execution of the first plurality of operations.

DEPENDENT CLAIMS

Claims 2-13, 15-21, 24-35, and 37-43 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 2-13, 15-21, 24-35, and 37-43 is therefore allowable for the reasons given above for the claim on which it depends. In addition, each of Claims 2-13, 15-21, 24-35, and 37-43 introduces one or more additional features that independently render it patentable. Due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of all of the remaining such features is not included at this time.

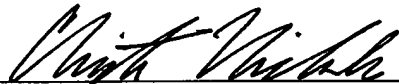
For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Please charge any shortages or credit any overages to Deposit Account No. 50-1302.

Respectfully submitted,

HICKMAN PALERMO TRUONG & BECKER LLP



Christian A. Nicholes

Reg. No. 50,266

2055 Gateway Place, Suite 550

San Jose, CA 95110-1089

(408) 414-1080

Date: February 9, 2004

Facsimile: (408) 414-1076

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on 2/9/05

by Darci Sakamoto
Darci Sakamoto